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## Claims

A method for determining the activity range of a test compound, which modulates the uptake of serotonin by a serotonin reuptake transporter, against a secondary target, said method comprising the steps of:

- (a) contacting a first nematode expressing a mutated CeSERT polypeptide, wherein said mutated CeSERT polypeptide has a reduced capacity to take up serotonin relative to wild-type, with said compound;
  - (b) assaying a defined behavior of said first nematode;
- (c) assaying said defined behavior of a second nematode not contacted with said compound; and
- (d) comparing said defined behavior of said first nematode to that of said second nematode, wherein a difference in said defined behavior between said first and second nematode indicates that said compound has a secondary target.
- 2. The method of claim 1, wherein steps (a) to (d) are repeated using first and second nematodes selected from a panel of nematodes expressing mutant CeSERT polypetides, wherein said mutant CeSERT polypeptides differ from said mutated CeSERT polypeptide of step (a).
- 3. The method of claim 1, wherein said mutated CeSERT polypeptide is a complete loss-of-function.
- 4. The method of claim 1, wherein said method comprises a liquid locomotion assay.
- 5. The method of claim 1, wherein said defined behavior is movement, pharyngeal pumping, egg-laying, nose contraction, or defecation.
- 6. The method of claim 1, wherein said mutated CeSERT polypeptide is selected from the group consisting of a CeSERT(n822) polypeptide, a CeSERT(n823) polypeptide, and a CeSERT(n3314) polypeptide.
- 7. The method of claim 1, wherein said compound is from a class of compounds selected from a group consisting of antidepressants, migraine medications, and anti-emetics.

- 8. The method of claim 7, wherein said antidepressant is a selective serotonin reuptake inhibitor.
- 5 9. The method of claim 7, wherein said antidepressant is a tricyclic antidepressant.
  - 10. The method of claim 7, wherein said antidepressant is a monoamine oxidase inhibitor.

- 11. The method of claim 1, wherein said test compound is administered at more than one condentration.

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